DOCUMENT RESUME

ED 033 782 RC 003 785

AUTHOR Elomberg, Karin
TITLE Direct Experience Teaching in the Out-of-Doors.
Pub Date 67
Note 42p.; Master's Thesis submitted to the Graduate School of the University of Minnesota (Minneapolis, 1967).

EDRS Price EDRS Price MF-$0.25 HC-$2.20
Descriptors *Activity Units, Arithmetic, Art Activities, Audiovisual Aids, Civil Defense, Creative Development, *Enrichment Experience, Environmental Education, *Field Trips, Grade 6, Language Arts, *Outdoor Education, *Perception, Poetry, Relevance (Education), Science Activities, Social Studies

Abstract

The method used to prove the value of direct experience teaching in the out-of-doors was taking children on short field trips and excursions and evaluating their attitudes and behavior as well as their accomplishments. Trips ranged from 10 minutes to 2 hours with a 6th grade class. The experiments took place for a period of 9 years (1955-1964). Experiences were on subject areas such as science activities, mathematics, language arts, social studies, art and music. The results of the activities were recorded by the writer in the form of notes on the reactions, discoveries, and creativity of the children. It was concluded that direct experience teaching in the out-of-doors will result in broader and richer educational opportunities and will provide a better climate for learning. (CM)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED033782

DIRECT EXPERIENCE TEACHING IN THE OUT-OF-DOORS

A Plan B Paper

for Ed. C.I. 205

Problems: Audio-Visual Education

University of Minnesota

by

Karin Blomberg

In Partial Fulfillment of the Requirements

for the Degree of

Master of Arts

Copyright 1967 Karin Blomberg, Minneapolis, Minnesota

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY KARIN BLOMBERG

TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE U.S. OFFICE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

RC003785

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	1
II.	GOLDEN AUTUMN	
	A Lesson on the Use of Water Colors	5
III.	AN AFTERNOON IN THE WEEDPATCH	
	A Lesson on Creativity and Discovery	8
IV.	A TOUR TO A CITY PARK	
	Use of Resource People	13
V.	ONE BEAUTIFUL MORNING	
	Sounds, Songs, and Cinema	18
VI.	AN ADVENTURE IN WHITE	
	Language Arts: Poetry	21
VII.	SNOW SCULPTURES	
	Group Work in Art	24
VIII.	SPUTNIK SPELLS TROUBLE	
	A Lesson on Civil Defense	26
IX.	PERIMETERS, AREAS, AND PI	
	A Series of Lessons in Arithmetic	29
X.	ROCKHOUND ON THE SCHOOL GROUND	
	A Magnifying Glass and A Glass of Water	32
XI.	THE EARTH SPRANG OUT IN BLOSSOMS TODAY	
	Something Never Experienced Before	35
XII.	SUMMARY	38
BIBLIOGRAPHY		40

CHAPTER I

INTRODUCTION

More than 300 years ago Comenius, in his Orbis Sensualium Pictus, made some interesting statements in the preface of the book. He wanted the children to be given the opportunity to thoroughly examine the pictures of the book, "so that they may see nothing which they know not how to name and they can name nothing which they cannot show" . . . "and let the things named be showed, not only in the pictures but also in themselves . . . ." "Thus at least this school would indeed become a school of things obvious to the senses."[1] In 1964 a sixth grader wrote in a poem about his baby brother

> If he could talk we could have fun.
> We could play ball
> Then in fall
> We could rake leaves
> And play with keys
> That open up trees
> And inside there's sap
> That we could tap
> If he only knew how to talk.

Discovery and exploring by the senses seem to constitute a very favorable climate for learning, obvious to the good educator and the child alike. The recent emphasis in educational literature on discovery and creativity is a healthy blow against verbalism, imposition of knowledge, possible danger of mechanizing and conformity of education connected with information through mass media and the use of teaching machines. However, if these devices are used correctly, a more efficient learning should be the result and thus time be saved for the more time-consuming creative learning experiences.[2] A healthy balance in the curriculum would be obtained. Dr. John T. Goodland's words on the same problems are: "Schools can and must provide a bastion for individuality in a world of increasing anonymity." The new curriculum would

---

[1]Sujit K. Chakrabati, Audio-Visual Education in India (Calcutta: The Oxford Book and Stationery Company, 1962), pp. 31-32.

[2]Alice Miel, Creativity in Teaching (Belmont, California: Wadsworth Publishing Company, Inc., 1961), pp. 177-182.

produce individuals with initiative and imagination, said to be so strongly needed in solving the problems of our fast changing modern society.[3]

But how can teachers learn to teach more creatively and assign a bigger allotment to discovery and exploring? The answers to that question may be many and varying. The writer's intention, however, is to show what an unlimited and pretty much untapped source for creative teaching we have in the great outdoors.

> Education never had proceeded and could not proceed without subject matter. Some sixteen studies however show that subject matter alone will make neither critical nor creative thinkers.[4]

What then makes children think critically and creatively? Children made aware in their school work of the nature, commented in their conversation at home on sunsets and flowers and cloud formations. A wealth of materials also seemed to have a stimulating effect upon the children's ability to bring forth something new. The outdoors is an unlimited storehouse: animals, trees, rocks, mud, twigs, wind and rain and snow, and also has the advantage of changing itself and its materials with the seasons and thus raising many questions, "Why?" All the senses may be used on long or short field trips outside the schoolroom. The children may see, touch, listen, smell and taste the different things. It will change their ability to express themselves in prose and poetry.

> If they wish to express the wind, let them feel the wind. Let them fly a kite in the wind. Let them sail a boat in the wind. Give them experiences with the wind.[5]

Some of the problems of the future we do not know anything about but some we can anticipate. One of the latter is the problem of our rapidly vanishing American heritage. According to Dr. S. Cooper seventy-five per cent of our people today live in great centers of population. They are the ones who decide on laws and regulations for the countryside. They must be informed of and have some firsthand experiences about the outdoors before they can become intelligent voters on flooding for instance.[6] Another problem of the future that we can anticipate is: "What

---

[3] National Education Association of the United States, The Step Beyond: Creativity (Washington, D. C.: Library of Congress, 1964), pp. 14-16.

[4] Ibid., p. 18.

[5] Ibid., pp. 6-8.

[6] Dr. Shirley Cooper, Deputy Executive Secretary, American Association of School Administrators, Washington, D. C., in a speech at the annual M. E. A. Convention, Minneapolis, Minnesota, 1964.

is the future citizen going to do with his sharply increased leisure time?" On January 1, 1961, a program got started to acquire land for public use on a large scale. It would include not only parks but public campsites, fishing rights, etc.[7] However, the public must be educated to use these facilities the right way. Direct experience teaching in the outdoors, done by the schools, could foster the children to depend on their own resources and to like the simple life close to nature. It would strengthen the academic subjects and teach human relationship at the same time. We may thus provide a worthwhile way for the future citizen to use his leisure time because of the possibility of a substantial carry-over.[8]

The method used to prove the value of direct experience teaching in the out-of-doors was taking children on short field trips and excursions and evaluating their attitudes and behavior as well as their academic accomplishment. The time varied from ten minutes for a trip out on the school grounds on a cold winter day to two hours for a tour by bus to a city park. The children consisted of a full sixth-grade class, varying in number from twenty-five to thirty-nine, with two exceptions only: one year seventh graders were involved and one year there was a split fifth and sixth grade. The experiments took place for a period of nine years, 1955-1964. During 1955-1958 the place was a six-room school located south of South St. Paul. During 1958-1964 two different schools within the Minneapolis Public School System provided the setting. The experiences spanned many sciences and subjects, such as conservation, botany, zoology, geology, mathematics, language arts, art, and music.

No outdoor education took place without careful preparation, sometimes for weeks and sometimes for a shorter time just before going out. The children were organized or grouped before leaving the classroom with a more rigid organization if the class was big or not so easy to handle and more freedom for smaller classes or more dependable children. The pupils were equipped with materials needed for carrying out the project, for note taking and recording of results. The class was well informed on what was expected from them and a follow-up took place after each activity. The nature of the follow-up activities varied. They could be in the form of discussions, summaries, pupil evaluation of the results, bulletin boards, displays and so on. Most important to the writer, however, was evaluation by observing the children's behavior during the experiments and comparing it with the behavior in the classroom. The results of the activities have in many cases been kept by the writer or others in the form of poems, bulletin boards and notes on discoveries.

---

[7] American Association of School Administrators, Conservation--in the People's Hands (Washington, D. C.: Library of Congress Catalog Card Number 64-19116, 1964), pp. 256-257.

[8] Julian W. Smith, Outdoor Education for American Youth (Washington, D. C.: American Association for Health, Physical Education, and Recreation, 1957), pp. 45-47.

Sometimes only a few samples were retained by the writer. In one case an after school inservice meeting was held on poetry writing in the out-of-doors where only a limited number of the class participated. The method and the results were then discussed and evaluated by the participating teachers. Also spontaneous remarks by parents to the principal or the writer about the children's reaction to the activities have been valuable in evaluating the direct experiences.

The word creativity is given a different meaning by different authors. For future discussions it would be of value to adopt a more limited interpretation of the word. The writer has chosen the definition used in the National Education Association of the United States bulletin, The Step Beyond: Creativity. "Creativity means the ability or quality of producing something new, unique, original not existing before."[9]

Creativity then should not be included in nor mistaken for the word discovery which rather is a way of letting the student find out for himself about the world around him.[10] "Outdoor education is as old as mankind itself."[11] However, in this paper outdoor education or direct experience teaching in the out-of-doors will have a more narrow meaning. It will be defined as "all that learning included in the curriculum in any subject matter area and at any grade level which can best be learned outside the classroom." That should not be interpreted as any disregard for the textbooks and the indoor learning but supplementing them.[12]

---

[9] National Education Association, p. 16.

[10] Jerome S. Bruner, The Process of Education (New York: Random House. First Vintage Edition, 1963), p. 20.

[11] American Association of School Administrators, Conservation--in the People's Hands (Washington, D. C.: Library of Congress Catalog, 1964), p. 266.

[12] Ibid., pp. 267-268.

CHAPTER II

GOLDEN AUTUMN

A Lesson on the Use of Water Colors

Fall is a fine time for conducting art lessons in the out-of-doors. To captivate the colorful foliage of fall presents a great challenge to the children. Also it is warm and pleasant outside, and they can sit on the ground the whole art lesson through.

The preceding indoor preparation had dealt with different techniques in using water colors, such as mixing colors for the painting of large areas and taking the colors directly from the paint box with a wet brush for bold effects. The topic for the art lesson was to be a tree and in discussing techniques the children decided that bold splashes of colors probably would best interpret fall. Another thing to be discussed and observed was the interaction of light and shadows on stems, limbs and leaves. The writer hastily painted--on a piece of manila paper clipped to the blackboard--a brown vertical streak and a green ball on top, asking: "What is this?" -- "A tree." -- "When did you paint trees like this?" the writer asked. "When we were in kindergarten," was the reply. "But now you are sixth graders, growing in understanding and keenness of observation. Look at this glass. Does it really look evenly blue all over or does the light have any effect on it?" Soon the children began to see light spots and darker parts, the interaction between light and shadow. Then they were all told to go to the window and look at the stems of the trees. Were they all black or brown? No, one side seemed to be lighter. That was what they were to observe and paint. Later on during the outdoor lesson a child came up to the teacher, showed his picture and asked, "Does this look like a kindergarten painting?" -- "By no means. It looks like a sixth-grade painting with all the fine shadows you have been able to fetch with your brush."

So it was time to go out. In a central place on the playground was placed a big box with art paper and materials and beside it pitchers with clean water. Every child had a piece of art paper clipped to a clipboard besides a paint box and a small jar for the water. First we stopped in front of a huge maple tree and tried to find out how many shades of red we could see. Close to the maple stood an elm, a gay mixture of yellows and greens. We tried to count colors again and with varying results. Some children recognized a few colors and others a multitude of them. Some teachers let the children use a paper tube to look through when finding out about the different shadings. The limited space of the tube opening helps them concentrate better on the task. Again the result varies greatly with different children.

So the children strolled away, in groups or alone, to find their very own tree to paint. The playground was park-like and beautiful and across

the street the yards were "blossoming" with the colors of fall. For art and language arts lessons a playground and surroundings of that sort are a tremendous asset. One rule only for the children: They had to remain on the school ground within sight of the "central office," i.e., the cardboard box of supplies where the finished drawings could be kept and new materials obtained. The teacher's task was to be on the move all the time, going from group to group, helping out whenever needed. A rather comical situation occurred time and time again showing the necessity for the children to be flexible and adapt themselves to the new situation. The writer was met with a helpless look and the question: "Where can I dump the dirty water? Where is the big kettle?" As our classroom did not have a sink and the lavatories were located at quite a distance, the writer had brought a big kettle to school to be used during the art lesson to pour the dirty water into. Now they scurried around the "central office" without finding it. When the writer of this paper told them that the kettle was not brought on purpose, it finally dawned on them that the water could be dumped directly on the ground!

The children seemed to enjoy the lesson tremendously or rather the whole setting, the beautiful day, the colors of fall, the freedom from classroom discipline and routine, and the newness of the task. A girl blurted out: "This is fun. It's just as being a real artist to sit outdoors and paint!"

The cheaper manila paper was used, so they could feel free to pick up a new paper if the first effort was not satisfactory. This is very important whenever the children try out something new that they are encouraged to find their own way, to discover new methods. It makes them bolder and less inhibited in their work.

The results of their efforts varied in both amount and quality, but there were results! One child that the writer recalled as usually producing very little, told everybody this was his best picture ever. His painting showed a wild splash of colors which caused somebody to say facetiously, "A gum drop tree!" However, many children defended it as being very pretty. Fortunately the writer's opinion was not asked for. It was a "gum drop tree"! Many drawings showed a fine observation of light and shadows and also the enchanting blend of colors in the fall foliage.

One very able pupil had caught something else with her paint brush, too. Looking at her picture afterwards the writer suddenly recalled the warm breeze that had been blowing outside. That was what the little artist had been able to put down on the paper for posterity. The tops of the tree branches, featherly light, bent and curled over in one direction just as the wind must have done it, blowing through the tree. Everybody marveled at it. In that moment the writer wished for a quality of paper more suitable to the quality of the art work!

As the children now were to make their first bulletin board for the school year, they were shown some bulletin boards from previous years

to find out what makes a bulletin board good. They had to find appropriate colors for the fall display. A flaming red cardboard was chosen for background. The drawings to be displayed were mounted on green or yellow construction paper and constituted the "center of attention." The caption decided on was "Golden Autumn." It was to be cut out in yellow construction paper. In order to fill out some empty spaces, but also to give an extra touch of fall, a few dry pods were placed in a corner and some orange leaves were falling against the background. During the first half of the school year the children may make suggestions for the bulletin boards but work under close supervision of the writer. During the spring term they are able to make out on their own, many times showing great skills, efficiency in the planning, and displaying quite an imagination.

Learning to paint trees outside on the playground had led into the art of making a bulletin board. One art lesson had developed into another of different character.

CHAPTER III

AN AFTERNOON IN THE WEEDPATCH

A Lesson on Creativity and Discovery

It all started with a field trip slip which every child had to have signed by a parent in order to be taken outside the playground. The place was given as something like "the empty lot next to 322 on 61st Street South." One of the boys had quite a problem getting the field trip slip signed. Apparently he had pulled his mother's leg so many times, so this time she decided not to be fooled. "Why in the world take a field trip to an empty lot? That's unheard of," she argued. Fortunately the little rascal was informed on and prepared for what was going to take place on that empty lot. But only after long and tiresome explanations, the boy succeeded to get his mother to sign. It kind of served him right though and what was more important, gave him a lesson on the necessity of building up a good reputation and being reliable and trustworthy.

One of the main and also immediate objectives of the trip was to find native materials, such as seeds and pods, and use them for art work. They could be glued onto paper forming fascinating scenes or arranged into interesting mosaics. Also nature's own color chart could be discovered and used by smearing juices from leaves and berries for artistic effects. The use of the latter technique results in amazingly deep and brilliant colors when fine light-colored sandpaper is used for a background. The sandpaper was also to be used for rubbing different kinds of stones and pebbles against. The rocks turn out very faint and delicate shades of ivory, gray, brown, purple, and pink. The idea of discovery, a long range objective of greatest importance, is here very obvious, because the looks of the rocks give no clue to what color they might produce on the sandpaper. The only way is to try and try again in order to find a sufficient amount of nuances.

The leaves and berries present many surprises, too. The blue wild grapes, for instance, give a brilliant purplish red color while the brilliant red sumac leaves give a very subdued brown imprint. Blue cedar berries leave a green color while a piece of burnt wood provides the black of charcoal if it is dry, but turns gray if wet. Roseberries give a strong orange color as could be expected, but who expects a rotted log to give a fine shade of grayish brown? All these colors from nature are of lasting nature; they do not fade. However, many tasteful compositions, although soon drying up, may be made from colored leaves and the few flowers left over from summer's big display. Seeds and pods again give more lasting art work.

Using only native materials will give the children an idea of what problems the Indians had to face in seeking for colors for their art and handicraft work. Maybe it also will give some of them an appreciation of

today's possibilities: For a few dimes a box of good crayons may be purchased and for a little more a paint box can be had from which an unlimited amount of blends and shades of colors can be obtained. However, being left alone with limited--and yet unlimited--native materials, most of which the youngsters never had used before, has proved to stimulate their imagination. Thus another objective of highest value will be fulfilled, i.e., to develop creativeness and imagination in the children. This is truly a situation where creativeness and imagination will set the limits of their activities.

We started out for our weedpatch clothed in jeans or other rough wear. We waded through the sea of weeds. Its waves sometimes went high above the children's heads, a thrilling experience. Their pants got full of stickers. They were doing a good job in spreading seeds and fruits around, a job otherwise undertaken by animals passing through. The first thrill of plunging through the thick weeds gave echo all over the place. No question any more of who had new clothes or was most elegantly dressed. All that mattered was being properly and practically outfitted for "roughing" it.

But it was about time to settle down. The sharp tone from the German dog whistle called those who had strayed too far away, back to the "headquarters." The "headquarters" was an opening in the weeds furnished with a cardboard box containing art paper, glue, scissors, etc., but no crayons or paint of any kind. To avoid unnecessary crowding in the "headquarters" each child had, before leaving the school, been outfitted with a clipboard, approximately 9" x 12". To the board the children had taped two pieces of construction paper, white or colored after their choice. In addition to that some children, who had volunteered for work on sandpaper, had been given a fourth of a sheet of light-colored, fine sandpaper to experiment on. If the artist would be successful, the small picture could be pasted on a red, orange and so on, piece of paper 9" x 12" and thus become a very attractive piece of art.

Furthermore, each child had brought from home a sturdy brown paper bag for gathering seeds and weeds, sticks and stones or whatever their eyes might fall upon. "Whatever their eyes might fall upon" turned out to be a very ambiguous statement made by the writer but more about that later.

Thus the "headquarters" only needed to be visited in order to get additional material or to deposit finished art pieces. At the "headquarters" the finished products were kept and, to the extent time would allow, mounted on differently colored construction paper. The small pieces of sandpaper art, for instance, turned out to be very attractive if they first were provided with a narrow frame in a subdued brown color and then mounted on a flashy orange background. After a while, however, the interest in the finished products became so great that quite a few children stayed in the vicinity of the "headquarters" and

formed an art colony there, a small "Montmartre," busily working and exchanging ideas, opinions and materials.

Let us look around and see what is going on out in the weedpatch. Some boys have found big pieces of burnt wood which they use for charcoal drawings. One of them has a huge stick, hard to balance, and still manages to turn out some pretty artistic though crude work. Watching his face you can see he is enjoying the situation, wiggling that huge piece of charcoal forth and back. As long as he manages to keep his art work fairly clean who is worrying about his smeared up hands and jeans! Other children have combined charcoal with leaves and seeds and enthusiastically show the more or less artistic result. Charcoal and juice of grapes, i.e., black and reddish purple, give beautiful results. Everybody seems to be happy to be able to create new things.

Many girls liked to try the sandpaper technique. Some got beautiful effects by making patches of dark purple, bright orange and brown into a pattern resembling a church window. One girl had just little sample blots all over her paper and decided to turn it into a color chart and label the origin of the colors. That in turn made somebody else volunteer for doing a similar chart of painting on a background of white construction paper with the same source materials. The effects turned out to be quite different. For systematically and at times less artistically inclined children, this is a choice assignment. Later on, when exhibiting the results, such color keys are very valuable to the viewer, explaining the origin of the colors. Several sandpaper art pieces, resulting from rubbing of stones on the media, were very refined. Faint, delicate shades forming "misty" landscapes, gave the children a new appreciation of the beauty of subdued, mild colors. Nowadays children's perception of color is stretched almost beyond proper limits by the neon lights with their sharp, clashing, and loud tones. Man needs to restore a proper sense of colors, accept colors that work together into a harmonious symphony instead of choking each other in a never ending strife for dominance.

Most of the children's paintings, where colors from nature were used, were done on white paper. Trees and part of the landscape around them had been the model. A single tree is a very good motif--being not too complicated and still requiring a sparkle of shades to interpret the autumn splendor. On these drawings were sometimes added branches, twigs, and berries for "better or worse."

A technique that was used with success by pupils of both high and low ability was glueing materials from the nature onto colored construction paper. Oblong leaves may be arranged into animals and pine needles for fur effects. Turning sumac leaves may provide a flaming red evening sky. Even simple bouquets or arrangements of weeds gave nice and varying effects especially as the children had a multitude of colored papers to choose from for background. This technique provided fine opportunities for experimenting with space and color. The generous time allotment, a little more than an hour, gave the pupils the

opportunity to try many different media. Also the children got a lesson on how man depends on and utilizes his surroundings.

Suddenly the enthusiasm seemed to taper off. The children had worked hard and intensely and no more could be expected from them. We packed hastily our things, picked up papers that in spite of instructions had been thrown around and headed for school.

How about problems--none at all? Because of the intense participation, partly due to a greater freedom, than enjoyed in the common classroom situation, to choose activities, the problems of disinterest are smaller than usual. However, being out-of-doors and not being limited by the four walls of the classroom, new problems may develop even if the children have been trained by first having very short experiences in the outdoors and then longer and longer as they are able to handle them. And those problems are hard to predict! They may come out of the clear sky or, as in this case, from a nearby graveyard. Adjacent to the lot was a graveyard and the children had been told how close to it they were allowed to go. However, right at the beginning, looking for seeds, someone happened to discover a "gorgeous" bouquet of artificial flowers stuck into a piece of styrofoam. Apparently the empty lot had been used to throw old decorations into--an easy way of getting rid of them. Another child found a styrofoam cross. The hunt was on! And what did the pupils not find.

It seemed like suddenly there were discarded bouquets and crosses all over the lot. The list grew: a handle of an old lawn mower, a spade, a discarded rake. A few days earlier the writer had inspected the lot and had not noticed a thing. The question was very pertinent. What was going to take over, nature's own color chart or the loud glamour of the dime store? That these things had been used on graves to honor the dead did not discourage most of them a bit. Finally they had to be told to get back to the work they were out to fulfill. Some still were not inclined to submit to the suggestion, so the writer gathered them in a group and led them through the weeds, farther and farther from the graveyard, pointing out different seeds and fruits, shapes and colors and after a while they were busy gathering materials from nature's own storehouse again. The immediate danger was over. However, going home later on, they were loaded down with all these hideous bouquets and crosses again plus bunches of high weeds toppling over in the wind. Fortunately the lot was located close to school so the writer told them that these things would not be brought into the schoolhouse but had to be picked up on their way home. Reluctantly and after some reminders the class was rid of the graveyard attributes and would head for home, i.e., the school, after the writer of this paper had counted noses.

At the end of the day one of the boys offered the writer a styrofoam cross he apparently had "smuggled" into the school anyhow and then got tired of. The writer usually does not refuse gifts, but this time she did by saying, "Thank you, but this cross was devoted to a dead person's

memory. I would rather see you put it in the wastepaper basket." With a puzzled look on his face, he did so.

The size of the class may present a problem but did not do so this time as only twenty-five pupils were involved. With few and dependable pupils more freedom may be enjoyed; with many and/or less dependable children a more rigid organization of the groups is necessary.

For open house at school a bulletin board of corrugated paper was stretched over the back wall of the classroom, displaying color charts and art pieces of many different techniques. The parents were tremendously interested in all the new things they saw and expressed their appreciation of the novel experiences their children had had.

A very worthwhile variation of "An Afternoon in the Weedpatch" is to devote it to a study of different ways seeds are distributed, by the wind, by animals, and so on. The writer tried that several times with junior high school classes over in Sweden. Each chose one way of distribution and reported by making a small bulletin board telling the story.

CHAPTER IV

A TOUR TO A CITY PARK

Use of Resource People

One fall our room took a field trip already in the second week of school to a city park. The early date was set because it enabled us to get a university senior as a guide, before he started his own courses. Our guide was majoring in wild life management and willing to help out of sheer interest. We were to be away for half a day and, therefore, chose the afternoon for our trip which would be warmer and more pleasant in case of chilly weather. But there was no need for worry. The day turned out to be warm and sunny, almost like a lazy summer day and made the shade under the trees most welcome.

After the bus transportation was cleared through the field trip office, there was not much time left to get ready and prepared. Our guide, however, took an hour to show the children some stuffed specimens of rodents that they could expect to see and to give them some important facts about the area to be visited. We would mostly follow different trails through the wild flower garden of the park. Those trails are so narrow so grouping would be of little help. At the most two people would be able to walk abreast on the trail without hurting the flowers growing on its sides. The class consisted of only twenty-five people at that time, so we decided to have our guide in the middle and half of the class, lined up two and two, in front of him and the other half walking behind him. This way they would all be able to see and hear him and also ask questions about their own observations. So the only decisions the pupils had to make were if they wanted to be "head" or "tail" and keep those positions whenever we were to walk on narrow paths.

The wild flower garden is divided into two areas: a woodland garden, also harboring a marsh, and a prairie garden, providing habitat for prairie flowers. The garden also serves as a bird refuge with a couple of bird feeders. The tour seemed to be a heavy lesson in natural science, both botany and zoology. We decided to use our eyes and ears for the purpose of finding out things but keep our voices down in order to see as many animals as possible.

Some children preferred bringing notebooks, an idea to encourage, and the others were outfitted with the clipboard, mentioned earlier in the paper, and ruled paper taped to them. The students were encouraged to take notes on and make sketches of things that especially interested them only, as it would be too much for them to keep track of all the things they were to see. Besides, the main purpose of the tour was observation and discovery, not note taking!

One more point of importance: no picking of materials from the garden was allowed. Whatever the guide would use, however, could be brought back to school. Judging from the wealth of materials they presented afterwards, that rule must have been broken many times. The children's assurance that it all had been found loose on the trail did not quite convince the writer. However, in due time it formed a beautiful display.

The tour began with a visit at the park office where each child got a copy of a pamphlet containing among other things a map of the whole area, a brief history of the establishing of the garden and a list of notable flowers and the month in which they were likely to bloom.

Our guide had many interesting things to tell about trees, their bark and leaves. He had to direct the children's attention to birds many of them did not see at the first glance. Also he helped with identification of the feathered friends when so needed. At the bird feeder he tried to make a little speech on some of the habits of the birds and got "bombarded" with questions from the children. It looked like some of the pupils had a good background in a certain field and now when they had an opportunity to ask an expert, they did not want to miss one chance to get their questions answered.

Although all of the children did not have the same deep interest in nature it seemed they were extremely happy and enthused about the many things they saw. There was no time to get bored. For instance at a bend of the road they all stopped, astonished at the sight of giant mushrooms, large as big pumpkins. To their delight the following day appeared in the daily paper a picture of a similar giant mushroom and several children brought the picture to school for our display. The daily news had become more meaningful to them because they had seen and observed the phenomena themselves. The only difference was that they had seen half a dozen of them in one spot which really thrilled them.

A very delightful sight remembered by everybody was about a dozen chipmunks chasing each other around on a hillside, jumping over trees and stumps. They were so involved in their "game" that they did neither pay attention to nor get disturbed by the young visitors. What a warm and sunny day, equally pleasant to man and beast!

At the end of the trip something happened that was of great value. The guide stopped by some mouse holes. The children soon identified them. Then he asked them what mammals were most common in this area and also for Minnesota as a whole. "Chipmunks" was the unanimous answer. Our leader disclosed it was mice and added, "If this is true where are they?" He let the children tell what mammals they had seen that day but nobody had really observed a mouse. "Where are they?" the question was repeated. A guessing game started: "They have migrated." Most children laughed at that one. "They are hibernating." No, that would be too early. Finally somebody asked cautiously, "Could they be sleeping?" Yes, that was right. The mice are nocturnal animals, i.e., active by night. That is why the mice are seldom observed in spite of their commonness.

The children learned a lot of new words that day or deepened the meaning of some already familiar. They really got a lesson in language besides natural science. The guide had presented "nocturnal" in a way that the children would not be very likely to forget. Furthermore, he had talked about mammals and herbs and fungus and fungi, the latter presenting a lesson in grammar. Later on in our exhibit we tried to include as many as possible of the new terms.

There are many advantages in bringing in resource people for a field trip. Not only is the expert able to answer the questions maybe dormant for a long time in the children's minds, waiting for a chance to be aired, but also he is a new person with another approach than the teacher and another vocabulary, which all is very stimulating. Later on the writer learned that some children had been waiting outside the school and almost had walked him home, about three-fourths of a mile, because there were more things to be discussed. This tour must have been very valuable to the children judging also from appreciative remarks from parents about this "fine opportunity to study nature."

The following morning the children were asked to bring out their notes taken on the field trip. A discussion started, on what they had observed and learned, long enough to get them all enthusiastic again. At that moment the writer wrote on the blackboard: "What I Liked the Most About Our Field Trip to ------." Papers were handed out. Allowed to use their notes if they so wanted, the children were soon busy writing about some thrilling experience of the day before. No one was complaining: "I don't know what to write about" or "Do we have to write about that?" because the topics were as many as the children although contained in one heading. The result of the compositions was very interesting. One boy wrote about a pheasant he had seen time after time, which must have been the highlight to him. A girl presented an almost scientific account of the plants, trees and birds in the garden. She must have had, probably through scouting, a sound foundation to begin with but still it was amazing with what accuracy she described things. The mushrooms and the chipmunks were very popular topics. Some compositions centered around the bird feeder and what had happened there. One child wrote nothing about specific plants or animals she had seen or heard. Her composition was rather a poem in prose on the delightful day, the pleasant odors from the rotten logs, and the play of light and shadows, the beauty of the day.

Here are a few examples of what the children wrote:

> . . . On our field trip we saw and learned many interesting things about nature.
>
> We saw many interesting birds such as the downy woodpecker and the nuthatch. I learned a nuthatch goes down trees head first. We heard a blue jay but didn't see him. Also we heard a ruby crowned kinglet.
>
> There were many trees such as the basswood tree, the Kentucky coffee tree, the red osier dogwood tree and the American elm.

The flowers were very pretty. They had some funny names, such as the monkey flower and the Solomon seal.

This is a story about our room on a field trip to -----. At the park it was beautiful. Birds were singing and chirping a pleasant song all of the time. The flowers were growing wild and you could hardly see or smell anything else. The scent was just wonderful.
The whole afternoon was exciting and fun. That was an afternoon I won't forget.

I was looking at the beautiful flowers. There was the red turtle head and the rough sunflower. They also had a lady fern. It was an elegant plant.
The trees had many different leaves. Some were small, some were big, and they all had different designs.
I had a very nice time at the park.

. . . Everything was interesting but there was one thing that amazed me. There were giant mushrooms! They were the biggest mushrooms I ever saw. Someone brought a news article to school about a giant mushroom. It had grown overnight. Scientists are taking tests to find out if these mushrooms are edible.
If you would like to take an interesting hike, do as we did and go to ---- Park.

As the compositions turned out so well, the class decided to put them up on the bulletin board that was planned earlier. The children got busy pressing leaves between waxed papers. Some heavy specimens were put in transparent plastic bags to be later stapled on to the board. Some pupils drew birds and other animals they had seen and cut out the drawings. They needed trees, big trees, and they were cut from several sheets of construction paper taped together.

At that point the children discovered they had lots of materials to exhibit and our bulletin board would not be big enough for half of it. There were only two things that could be done, either weed out lots of the materials or make an "unlimited" bulletin board. They settled for the latter. The desks were shoved to one side and a roll of emerald green corrugated paper was rolled out on the floor. Now things could be put in place and as much as was needed of the roll be cut off. However, looking at the result there were quite a few duplicates, and the organization of the specimens was not so good either. It was quite a disappointment to have to roll up the corrugated paper again, weed out duplicates, and get a finer organization, so we put it away for the day.

Next morning everybody felt like working again. Some good subheadings were found: trees, herbs, fungi, birds, mammals. The big trees formed a nice separation here and there. One of the maps, obtained in the park office, was displayed with the actual tour outlined in red. Also the children got the idea of mounting the plastic bags, the leaves, and

pieces of bark on colored construction paper. They chose all fall shades from yellow to orange and red plus pink, the latter being a favorite of the children (not the writer). It was really a flash of colors against the emerald green background. Compositions were displayed at both ends. Finally the exhibit was clipped to a blackboard at one side of the room. It was a bulletin board we were all very proud of.

What the writer has termed the "unlimited" bulletin board is very practical for children's displays. The size of the fixed or permanent bulletin board limits their plans too much. Furthermore, they have an opportunity to try out the arrangement of the material on the corrugated paper on the floor first and make changes before the items are glued, pinned or stapled on. Also bulky materials such as twigs and branches can be sewn unto the background which in turn provides for variety and wider use of their imagination.

Finally the "unlimited" bulletin board may be rolled up into a big roll and moved to a bulletin board out in the hall or to workshops and exhibits, the roll fitting nicely into a car of ordinary size. To have their work displayed in another school, for instance, is a great boost to the children and exchanges of displays should really take place much more than is the case.

CHAPTER V

ONE BEAUTIFUL MORNING

Sounds, Songs and Cinema

Why are some mornings so beautiful? Is it the ions in the air that decide man's feelings, or is it the pure light that gives everything a newborn look? Anyhow, one beautiful morning our class went out in the park-like area of our school ground, that we are so fortunate to have. We were there to record the sounds of the morning, not on tape but on paper with the help of a pencil. We discussed the physical reactions people might have to different sounds: They may jump up when they are startled, cover their ears when a too high-pitched tone reaches them, and so on.

Maybe we could let our hands follow the rhythm of a tune and jot it down on the paper. One boy in the room whistled a couple of notes for us repeatedly. Nobody could look at his neighbor's work, but in spite of that many of the lines showed great similarity when compared. A few children had a more intricate pattern but still falling within the frame of the notes given.

We were ready to record the sounds of the morning. There were sounds of the distant traffic, horns and screeching of brakes. There were the sounds of human beings. We took upon us to interpret a human laughter into lines and curves. Most important, however, was to find melodical sounds like bird song that could develop into rhythmical patterns. Unfortunately it was a little too late in the fall to find enough birds for variation but some of the children helped out with bird calls. The lesson should have taken place in spring for better results, but the writer had gotten the idea of recording sounds as lines and curves at a workshop that fall and was eager to try it out in connection with an upcoming lesson on painting music. The idea of recording sounds by means of lines was well accepted by the children.

Back in school the writer had a movie, threaded and ready, "Begone Dull Care" by Evelyn Lambart and Norman McLaren.[13] When this movie was viewed in a college class once, although many students were enthusiastic about it, some could not understand what the whole thing really was about. It was just too weird. Not so with these sixth graders, they knew very well "what the whole thing" was about when the soundtracks and dots and lines began to dance in step with the accompanying

---

[13] Evelyn Lambart and Norman McLaren, Educational Film Guide, 1953. Produced by the National Film Board of Canada. Released in the United States by International Film Bureau.

music. This was still better than they had done and they chuckled and laughed through the whole movie. At the end they asked if they could see it over again. As the movie was short the writer let them have their "fill" of "Begone Dull Care."

However, it was high time to get something else done while their enthusiasm was still at its peak. Out of their desks came paint boxes and jars. Every child got a good supply of cheap manila paper, 9" x 12", and one piece of white good construction paper, same size. On the teacher's desk was a big supply of paper and they were told to quietly tiptoe up to the desk if they ran out of paper or wanted a bigger size. The children were to paint music played to them on the record player. They were warned against overdoing things, i. e., putting too many lines on the paper which would result in a dull mess of colors. Instead they were encouraged to use their good supply of manila paper, saving the construction paper for something especially beautiful when they felt they got "the hang of it." Thus the project was launched as a means of trying out and discovering new ways of doing things. This was likely to make the children less cautious and inhibited.

The teacher started the record player. A theme from Tchaikovsky's Nutcracker Suite swept through the room and the paint brushes got busy. A switch was made to Offenbach's Barcarolle. No child had time to look around. They were all very absorbed by their tasks. Soon they became very critical of the music, telling the writer what melodies were good or not good for painting. The end of Sibelius' Finlandia with its egging drums seemed to be their very favorite. The beats of the drums were interpreted into big splashes of colors, almost like an explosion.

Although the writer many times had let children draw after music, this was the first time she encountered such a sharp discrimination of the music. Earlier there had, furthermore, always been some children who did not know what to do. It looked like the direct experience outside earlier in the morning had improved their listening habits. The same experience had prepared them for the immediate understanding of the movie that painted music. They had discovered there are new and thrilling ways of doing things. Never before had the writer gotten so many contributions from one single art lesson.

The following day when all their drawings were dry, it was time for an evaluation period. As no child could be overlooked and at the same time a prolonged evaluation would make them bored, each child was told to arrange their drawings in a fan ready to hand over to the teacher as she passed by. In most cases the class was just asked which of the drawings, a certain pupil had made, was the best. Every child thus got the satisfaction of having done something worthwhile.

Sometimes the writer deviated from the set course and asked, "What makes this painting so beautiful?" Sometimes controversial issues were brought up for discussion, such as a drawing with lots of figures and geometrical shapes and flowers on it. Some children claimed

it was too many pictures of real things on it. The artist replied that there were pictures in the movie, too. We found out that some of the pictures, with the natural looking flowers at one side, did not go very well with the abstract figure on the rest of the picture. In the movie the pictures were more of the same style. When the analyzing was finished, the writer suggested that the flowers should be cut off and the remaining long strip with the more abstract art work, be mounted on a sheet of black construction paper. The result was very good which made some other pupils discover that their pictures would benefit from some cutting, too. The paper cutter suddenly became popular!

The class as a whole was not extremely artistic and still this was the best participation and best over-all result the writer got from an art lesson on painting music. Fortunately the class was in charge of a hall bulletin board a couple of weeks after this lesson. By changing pictures with regular intervals, every child had a chance to see his production up for display at least once.

The bulletin board was a gay one. All jumbled up in the middle were labels of the music played. From them colored ribbons went out in all directions touching the paintings connected with the respective music. Every child had mounted their pictures on colored construction paper. Finally the illusion of a gay adventure in listening was achieved by stretching a staff of black yarn across the bulletin board with notes and musical signs dancing all over it.

This lesson is going to be repeated next school year. There is a shallow lake, surrounded by heavy brushes at a walking distance of fifteen or twenty minutes from school. It is a habitat for waterfowl and many other birds in spring. We are going to take a field trip on listening down there--one beautiful morning!

CHAPTER VI

AN ADVENTURE IN WHITE

Language Arts: Poetry

It was a cold but beautiful day in February. The sun was out but so was the wind. It was not possible to stay out with a class for a longer period of time than ten to fifteen minutes. Sometimes, however, a lot of things can be accomplished in such a small amount of time.

The children had had plenty of experience in picking out descriptive words from their readers. Also they had been given small exercises in which they all were asked to find a good description of such things as the moon or picture in words what clouds look like to them.

The only materials needed were papers taped to a clipboard and pencils. The pupils were grouped five to six together. Sometimes a child strolled away from the group in order to be alone and no harm in that. They were told to use all their senses, if possible, to find out what winter really is like. What could they feel--anything but the cold? What could they hear as they walked over the snow or listened to the wind? Could they taste or smell anything particular about a cold wintry day? Most of all--what were they able to see in color, movement or stillness?

The children were encouraged to jot down good descriptive words that came to their minds or maybe a word picture or a whole beautiful phrase. They might share their findings with the group or keep them to themselves as their own property. Those notes would be used inside for poetry writing afterwards. Furthermore, they were told to try to find suitable expressions for their own feelings about winter and snow. Judging from the material on their clipboards, much had been accomplished in a little more than ten minutes. At that time most of them were happy to go inside again.

Back in the classroom some ideas were briefly shared and some words and phrases from their notes were written on the blackboard. So the children were encouraged to take a look outside again through the window and then write a poem, short or long, about winter or snow, using some of the words from their papers or the blackboard. Soon they were all busy, some struggling with one little stanza and others writing poem after poem as fast as their pencils could move. Again the direct experiences from the out-of-doors seemed to stimulate and inspire the children in a way that makes every individual able to produce something worthwhile. Afterwards the writer made a booklet of the poems, every child had at least made one contribution, and sent it down to the principal. He was very pleased with the result, especially as the whole room had taken part in it.

At times the writer has been asked, "How do you make sixth grade boys write poetry?" The answer is simple, "The same way you 'make' girls write poetry--by letting them experience and discover something worth writing about." Boys are keen observers as in the following verse:

Snow flutters down like a feather
The flakes all sparkle as they fall:
The drifts build higher and higher as it snows
Lovely whiteness on the ground.
The wind picks it up and throws it around.

Boys also reveal deep feelings as in the following short little poem called "Winter" and written on that cold February day.

When the cold winter winds blow
I sometimes think of all those poor pine trees
that feel no warmth
And even the birds that might be froze
Keep chirping and chirping to keep us happy
Because their feelings are so high.

At last let us enjoy the fancy language of a ten-year-old girl as her observations mix with her imagination in a poem called "Snow":

The glittering and the glistening
of the soft white snow
Makes the world so peaceful
As each crystal drifts and blows.
Its lovely whiteness and its lovely
brightness dances about.
Makes the earth tingle and jingle
with the soft white snow.

A similar approach has been used by the writer for the writing of spring poetry with fine results. In spring there are so many more things to experience. Sometimes also the weather permits the children to write the poetry outside which many times is an advantage, omitting the interruption that comes from taking off wraps and boots before entering the classroom.

Besides making booklets for a culmination, two or three of the poems could be printed in bold-type letters on construction paper and used as a center of attraction on a bulletin board. For winter the colors should be cold: black, white and icy blue. Fine effects may be obtained by applying cotton for snow and/or cover the whole bulletin board with white tulle which can be had for a very reasonable price. In spring all the greens and yellows and chartreuses are favorites.

For the display of poetry the writer many times prefers smaller portable bulletin boards made from colored cardboard, 28" x 45", furnished by many schools. Those might be loaned to other rooms, easily

brought with to meetings for the illustration of speeches, for exhibits, and also stored for future use very conveniently. Used in the classroom, new poems should be displayed now and then. It is better to show a few at a time than to have the bulletin board all cluttered up with many that never are changed. The poems are independent of each other and not a systematical part of a certain group as many times is the case in science and mathematics, for instance.

CHAPTER VII

SNOW SCULPTURES

Group Work in Art

The class had been very interested in making clay sculptures in a unit on Mexico. They had made pots and people, Aztec sculptures and animals. After decorating them with bright enamel paint, the collection looked very nice.

Now was the time to move on to greater or at least bigger tasks, snow sculpturing. The main rule, learned when modeling clay, would apply to snow sculpturing, too, namely to form a compact heavy-set sculpture with no thin or fancy additions on it which would easily break. One of the greatest sculptors of all times, the writer recalls, claimed that a good statue, if rolling down a hill, would not lose any of its main parts. The biggest difference between our clay and snow sculpturing would then be that the latter was to be carried out as a group enterprise rather than an individual undertaking.

The snow had to be of the right consistence. In waiting for that we prepared ourselves for the task. Each group had to meet in a corner or an isolated spot of the classroom and plan their snow sculpture. Sketches were made and one or sometimes two were approved as workable by the members of the group. The teacher then had a short discussion with each group on the possibilities of carrying out the task, if extra material had to be brought in and so forth. When the perfect snow conditions were at hand one day, the children were immediately ready to go out, bringing the approved sketches with them. Of course, changes in the plans were allowed when so needed.

Well out on the playground each group got an area to work in as far apart from the others as possible so the different teams would not be able to see too much of each other's work before completion. Also there was not an abundance of snow at hand, so this idea of a specific area for each group helped to avoid fighting over the snow supply. Each group had selected a chairman who among other things also was responsible for the conduct of the members. For instance no snow balling could take place.

The work went swiftly, especially in the beginning. Some children had organized the work so that some gathered the snow and some sculptured. Other groups enjoyed all running around to get the snow and then add their handful on to the common project. Many different ideas were carried out.

One very humorous and at the same time not hard to make was a long, long larva built of an "endless" row of big snowballs. For the head the team had used a bigger ball and attached sticks and stones to give it

a "facial" expression. A sculptured rabbit was nicely done but in the writer's opinion a clumsy bear, sitting half upright, was the most artistic work. But not so when the children voted.

The majority of voters chose a big boat sculptured on the ground. It had sturdy seats of snow and was big enough to hold a whole group of children at a time. It was hard for the writer to understand their choice, because there was nothing fancy or beautiful about the boat. It looked like a crossbreed between a canoe and a rowboat. But the children could sit in it which seemed to be very fascinating. Everybody wanted to board it, so they had to take turns, one team at a time should be allowed to use it. Group after group sat down in it. Some children began to "row" or "paddle" and from the expressions on their faces, it was obvious they were not sitting on a pile of snow on the school ground. They were out on adventures in some place and time the writer could not reach. The writer of this paper was the one who "missed the boat."

It was a very pleasant hour spent in the out-of-doors with plenty of exercise and fresh air. The only follow-up was the judging and voting on the best sculpture. However, for a long time afterwards the children in their conversation came back to "the day we made snow sculptures." It showed that the experience of working together had in some way united and brought the class together in a very favorable way and that should mark the end of the story about a "dream boat!"

For smaller children other teachers have successfully used tempera paint for decorating the completed sculptures. It has added a lot to the fun of working with the snow. For sixth graders, however, likely to have a better perception of shape and form, the white snow alone would probably present the best artistic media.

CHAPTER VIII

SPUTNIK SPELLS TROUBLE

A Lesson on Civil Defense

In the year Sputnik started to orbit the earth, the writer taught a seventh grade in a small rural school, south of South St. Paul. The trouble started with a careless remark made by the writer of this paper. And one of the reasons why this lesson never was repeated is that the writer learned a lesson.

Sputnik caused some kind of a panic in the United States and naturally some of it carried over to the children also. One day during a science lesson--if Sputnik was mentioned or not is now beyond recall--a seventh grader asked, "If an atomic bomb should fall down in St. Paul, what would happen to our school?" The writer's answer was given in a joking manner, inexcusable maybe considering the age of the children. "If that happens we do not have to worry about the school. It will be 'gone with the wind'."

A chorus of questions were fired back: "Why?" "What's going to become of us?" and so on. It was too late to back out; a storm was loose. The only thing the writer could do was to give an honest explanation.

The school, being built on a hill, would probably be carried off its foundation by the strong winds going out from the center of the atomic explosion. However, there was maybe no need to worry with the triple radar system being constructed up north by the joint efforts of the United States and Canada. Even if an enemy plane succeeded in sneaking through it, which was not very likely, there would be plenty of warning time from the moment it passed by the Duluth area.

"But what am I going to do with me and my sister if it happens?" a girl blurted out. "My parents both work in South St. Paul and our house is located on a hilltop, too!" Others asked, "What are all the children in the school going to do if it happens when school is on?"

By that time the writer had become as scared as the children, but for another reason: "What a flame had been ignited. How would the parents react--the principal--the school board?" The only thing was to act as calm as possible and make a real investigation. After all, those questions were vital ones. The children were told by the writer that how bad things look, there is always something that can be done. Valleys and depressions provide excellent protection. Even in Hiroshima all people did not get severely burned. For instance, a couple of men, leaning against pillars outside a bank building did not get burned by the radiation on the parts of their bodies that were protected by the pillars. The

whole class got on fire; nobody was passive or uninterested. This was a matter of life or death. They were going to find out what could be done--really find out!

Nobody could find any literature on the subject in English, but the class was very fortunate to have access to an authority on civil defense from Europe, a foreigner. The first thing was to set up a theoretical situation and decide where the bomb had fallen. The Capitol of St. Paul was decided on. After that the children had to estimate the distance from their school to that point, or the point of explosion. The distance became the radius of a circle with its midpoint at the Capitol. From the center of that circle winds and radiation would spread out equally strong in all directions. "Our radius" was long enough to put us in a zone where evacuation would not be necessary. The school and other buildings would not only fly off their foundations but be torn into pieces immediately.

The basements, however, of buildings with a lower location would form a very fine protection both against strong winds and radiation. If a good basement was not within reach a gully or depression close by could be safe enough especially if a high hill bordered the gully to the north. The radiation and the winds would in that case travel mostly above the heads of the people seeking shelter and protection. According to the tables of the expert, the radiation and the heat should at that distance from the center have weakened to a degree that if all the skin was covered with clothing, no burns were likely to occur.

At that point the scare was gone. The whole thing was just tremendously interesting. The children began to investigate their facilities at home. Would their basement be safe? Did they have any protective depressions close by?

How about all the school children? With the new knowledge of the value of hills and valleys as a safeguard, the children found out with great relief that just on the other side of the road was a valley big enough for two schools of the size of theirs. It would only require four to five minutes to reach it. "Can't we try it out?" the children begged. They could ask the principal about how long a time it takes to empty the building during a fire drill, adding the two figures would give a good estimate of the time it would take to evacuate the school and bring the children to safety. As lots of small pupils would be involved, they decided to walk at a slow pace down to the valley. A couple of boys had already made an investigation of their own and found out that the elevation bordering the valley to the north was almost perpendicular to the radius drawn from the Capitol and hence very ideal for the purpose of protection against winds and radiation.

The big "evacuation day" came. Officers were picked to produce some kind of an air-raid warning signal and also to give the all-clear signal afterwards. There was not a pupil in the whole classroom who did not know the difference between them. Furthermore, these officers were to inspect that everybody took the experiment seriously. If anyone

peeked during the "air-raid" the officers took down his name. The same went for those who had not entirely covered up the skin on arms, legs, neck and so forth.

After the danger was over an evaluation took place. The officers reported those who had gotten "facial burns" because of peeking or "burns" on arms, legs and so on. Improvement was suggested. Furthermore, the possibility of an evacuation drill for the whole school was discussed. Another suggestion was assigning two big children to each first grader so he would not stumble and fall. Somebody also pointed out the value of this experiment if they were traveling during an air-raid. They would always head for a ditch if nothing else was available.

We never got to carry out the evacuation plan for the whole school, but the value of this "direct experience" teaching in the outdoors can best be summarized by a statement made by the girl who lived on a hill and had been frightened and asked what to do with her sister and herself, if her parents were away from home during an air-raid. At the end of the evaluation she stood up, brushed the sand off her skirt and said with great confidence, "At least I know what to do now!"

CHAPTER IX

PERIMETER, AREA AND PI

A Series of Lessons in Arithmetic

The sixth-grade arithmetic program includes a portion on perimeters and areas. Some children seem to forever mix up the two concepts. You straighten them out and after some time they tell you again: "I have forgotten which is which." Therefore, the writer now always saves that part for the early spring. As soon as the snow is melted from the black-topped part of the school grounds and the weather is pleasant, the instruction begins.

Again our school is very fortunate when it comes to playground facilities. The blacktop, mostly reserved for the smaller children, has an intricate pattern of hopscotches, circles and squares, traced on it in bright yellow paint, to facilitate different games and play. In addition lines for the big children's "600-yard walk" and "50-yard dash" are laid out. Thus, the playground offers almost unlimited combination possibilities for especially rectangular shapes.

To begin with the children are divided up into small groups of five or six. Each group is provided with paper, pencils and a tape measure. The whole thing starts as a game. Each team is supposed to select a rectangle, small or big, and run around it, thus indicating the perimeter. Some always get a satisfaction from running around the yellow line bordering the blacktop. After that they have to find a square and do the same, a circle, a triangle, an irregularly-shaped figure and so on. So far it looks like a game, but all the time they are learning by experience what a perimeter is. Next each group is assigned a specific rectangle and asked to find its perimeter by taking as few measurements as possible. First one half of the group measures and the other half does the figuring. After that they switch tasks in order to check up on each other's work. As a group gets ready the teacher goes over their work and assigns to them new problems on squares, for instance. Some follow-up work on perimeters is done in the classroom and the arithmetic textbook is used.

Another day the secret of areas is explored. We start out at one corner of a huge rectangle. With the help of a piece of chalk and a yardstick, in that corner a square foot is drawn, two sides being part of the big rectangle's length and width. Other square feet are added in one direction, until there are six of them. Two more rows, six feet long, are added. Counting the square feet the area turns out to be eighteen. Another row increases the area to twenty-four square feet and so on.

The writer then raises the question: "Do we have to fill up this whole big rectangle with square feet in order to find its area, or is there

a short cut?" Most of the children see that they only need to measure the amount of square feet contained in each dimension. By multiplying those measurements they get the area much quicker. No time-consuming figuring is done out-of-doors. If the measurements do not come out evenly in feet they are rounded off to the nearest feet before multiplying. When the answer is obtained, the group are assigned individual rectangles and some groups are soon ready to figure out more complicated areas where addition or subtraction of two or more rectangles will give wanted answers to their questions. Here again the arithmetic textbook offers a good follow-up.

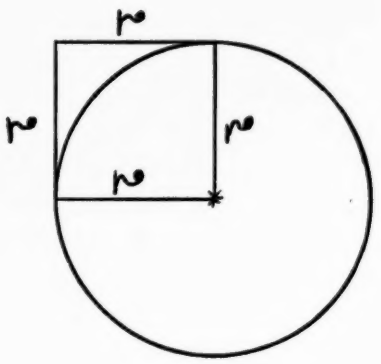
The third out-of-doors lesson is devoted to testing the children's concept of perimeter and area. It starts with a game to find out whether it is possible to confuse them on the two concepts. For perimeter they are supposed to run around the figure suggested, for area they are expected to hop around inside it, thus implicating the content. The teacher blows her whistle and shouts: "The perimeter of a square." The children find fast a square and run around it. Next: "The area of a rectangle" and you see some pretty fancy dances inside the rectangles indicating the children enjoy themselves. So the games go on for a little while.

A test on speed and organization follows. Each group is assigned a rectangle. The children are supposed to find both area and perimeter of it as fast as possible. In case of six groups, the one first ready with the correct answers will get six additional points, the second will get five points and so on down the scale. It is very interesting to see the different ways the groups work. Some children seem to get organized in a matter of seconds by their chairman. Everybody knows what to do. Others run around all trying to do the measuring. After the results are checked, a discussion follows of the necessity of good organization. Sometimes it happens that a group, having measured the dimensions for the area, do it all over again for the perimeter. In well-organized groups some measure and those best suited for figuring do that. There should be a team work within the team. After a discussion of that sort a great improvement is usually shown in the following tasks.

The fourth and last lesson in arithmetic is aimed at accuracy in measuring. All measurements have to be taken in inches and parts of inches should be expressed in decimal fractions to the nearest tenth. The task to be carried out is first very confusing to them. How can it indicate the accuracy of their work? They are to measure the perimeter or circumference of a circle and also its diameter. Then the circumference has to be divided by the diameter and the operation carried out to the nearest tenth. Also they should try this on as many circles as the time allows. The children usually know by now how to organize and a lot of work can be covered in a short time.

The children always become puzzled by the answers coming out in the vicinity of 3.0, 3.1, and 3.2. As more and more groups revealed their results, it was obvious we had hit on a constant. That constant

even has a special name "pi" (π). Back in the classroom we discussed the possibility of omitting the cumbersome measuring of the circumference by using only the diameter and pi. (Circumference = diameter x pi) A few of the pupils usually become fascinated by the "discovery" of pi and want to figure out circumferences all day long. These children can be given graph paper to draw circles on. For each circle they also have to draw the square on a radius.



Then they can estimate the area of the circle by counting the number of little graph paper squares that are falling inside the circumference of the circle. Squares that are divided by the perimeter should be rounded off to the nearest whole square, i.e., zero or one. The square on the radius they know how to find. Now they are asked to divide the area of the circle by the square on the radius. Again the thrill on that amazing number pi. Next step is to find a short-cut by using the square on the radius, which is very easy to obtain and the constant pi. The formula "Area = pi x the square on the radius" is found in a very meaningful way!

This series of direct experiences in finding perimeter and area is very helpful to the children although in many different ways depending on individual differences and different abilities. For those with limited insight in arithmetic it gives new interest in and firm and lasting knowledge of the fundamental concepts. To those gifted in arithmetic the "discovery of pi" is a tremendous experience, leading into true understanding of formulas, not just as something that has to be learned by heart, but as clever and challenging short-cuts in the solving of problems.

CHAPTER X

ROCKHOUND ON THE SCHOOL GROUND

A Magnifying Glass and a Glass of Water

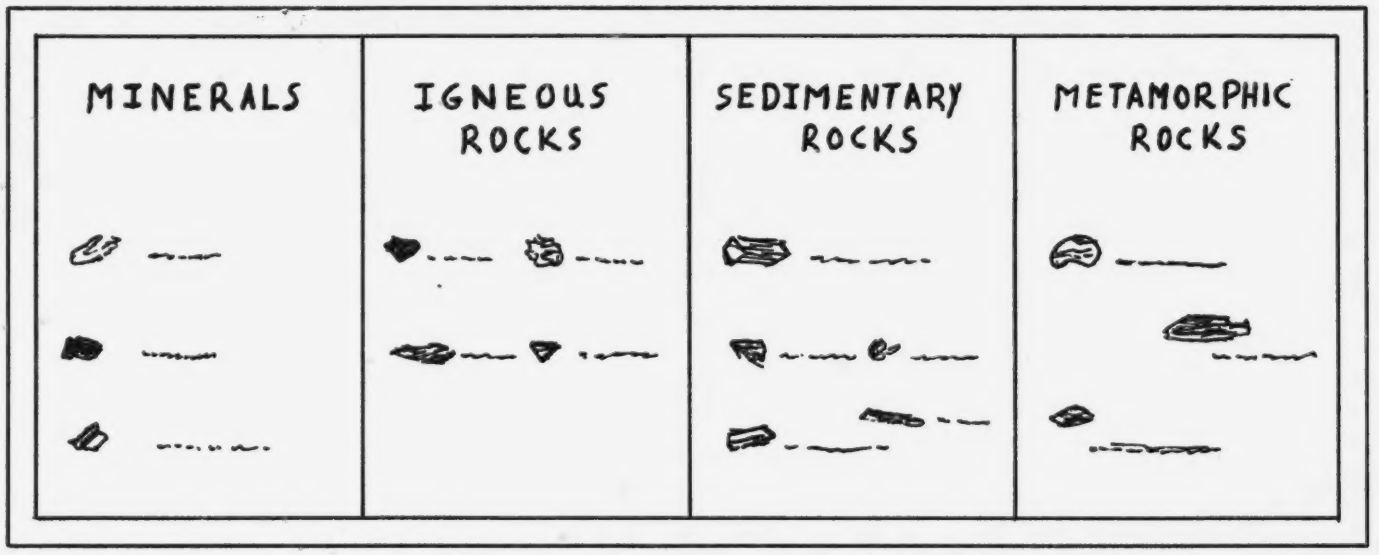
Children are usually very eager to bring their rock collections to school. However, most of the collections are of the commercial type, ready made and labeled. They designate which one is the rosy quartz, the milky quartz and so on, but if you pick up a piece of a rock from the school ground they cannot identify the quartz in it. They may know the piece of limestone in their collection, but it has never dawned on them that they have been walking down a limestone stairway since kindergarten and that it is full of fine fossils. Children pay much attention to agates and gather them eagerly but a pebble of granite is seldom identified. So in the school with the limestone steps we had to start right from scratch.

A unit on how the earth changes was supplemented with several small trips out on the gravel of the school ground. The only equipment necessary for each child was a magnifying glass and a glass of water. The magnifying glass helped in studying the crystalline structure of rocks and the glass or jar with water was to wash the pebbles in and make the colors clearer. Sometimes one jar of water per group is advisable because if that is all the water the group possesses it cannot be used for other purposes!

The formation of igneous rocks had been studied. Also samples of igneous rocks had been examined under the magnifying glass and its crystalline structure recognized. The three main minerals of granite, namely quartz, feldspar and mica, had been properly identified on samples in the classroom.

The first trip outside aimed at these three minerals. Every child was supposed to pick out from the pebbles on the school ground one mineral of each kind as clean as it was possible to find it. There was a buzzing within the groups while they were examining and washing the pebbles and also quite a few arguments. Suddenly those inconspicuous pebbles had become the center of interest. If the group could not find the solution, the teacher was consulted.

Back in the classroom with the "treasures" the work began on the individual rock collections. Each child made a box from a sheet of construction paper, 12" x 18". One fourth of the space was dedicated to minerals. The children glued their samples to the bottom and labeled them. Also a heading was placed above them.



The next fourth of the box was labeled "Igneous Rocks" and another day we went out again to see what the playground could offer. Granite was especially interesting as it could vary both in color because of differently colored feldspar, and in coarseness. Some of the igneous rocks could not be identified but as they had all the characteristics they were included in the collections anyhow.

As the unit progressed we took a trip to find sedimentary rocks. There were limestone and sandstone of different shades. We felt the difference between the sandpaperlike surface of sandstone and the smooth surface of limestone. To be sure we had limestone we tested it with acid which the children found very thrilling.

On our way up to the classroom we sat down on the stairway. Two children were sent up to the room to get wet sponges. So began an interesting hunt for fossils. The moisture from the sponges brought out the contour of the fossils in full brightness. Mollusks, dead since millions of years, were preserved in stone and their features could easily be studied. On a cross section we saw the chambers of the shell. Some had been cut exactly through the center so even the siphon, going through every chamber, was visible.

How come so many had died at about the same time? Maybe there had been big storms and the shells, bouncing against each other, had broken off each other's fragile pointed ends. Water would then have seeped through the siphon into each air chamber and made the shell with its inhabitant at the top, sink down to the bottom. Could that really be true? At least later forms began to curl in the sensitive top for protection, and thus better chances for survival were obvious. Today we recalled snails and seashells may have pretty fancy spirals also. It was a certain feeling of a world gone by and its struggle for survival. A girl interpreted the personal involvement that had taken place by saying, "Those fossils are really too nice to step on!"

Already at the time the children were looking for sedimentary rocks, some of them had found rocks that puzzled them. Some rocks had typical crystalline structure and still the layers of the minerals could easily be recognized. It was gneiss they had run into, a metamorphic rock. Our last trip to the playground was to find those metamorphic rocks with such a complicated background. Gneiss was the easiest to find and at least each child had one sample for the last fourth of the collection box. At this time it was easy to see the change in attitudes that had taken place in the children. The pupils were much faster in finding what they were looking for and there was less arguing within the groups. They also had learned to "look" not only "see," i.e., their observation had grown much keener. Their knowledge had deepened through an interaction between books and field trips, between theory and reality. Some of the children were already little experts on the pebbles--at the beginning so uninteresting and now offering a "whale" of archeological history.

At a public library the writer once saw a Chinese story book displayed. It opened up with the pages and cutouts forming different scenes from the stories. It gave the writer of this paper the idea of building stationary dioramas on a circle of cardboard, that did not collapse as those in the book. On a "lazy susan" as a base you place a round piece of cardboard. On top of that you place two vertical pieces of cardboard crossing each other, so four compartments are formed. Three pieces of cardboard will form six compartments and so on. It may be used for all kinds of displays and has the advantage of being twirled around on its base so any part can be studied closely. In this case one compartment was used for fossils and the side panels showed a reconstruction of some of them, how they probably looked when they were alive, their natural surroundings and so on. The three remaining dioramas pictured igneous, sedimentary and metamorphic rocks with the story of their origin painted on the side panels. The fact that it was fun to spin the exhibit around made many children come and take an extra look at it. The dioramas in this case constituted a very attractive follow-up of the unit compared to the plain looking boxes fround all over the room on ledges and tables. Still those boxes were more important because they had given every child an opportunity to look, discover, compare and discriminate and finally systematize.

Playing "Rockhound on the School Ground" may also provide a stepping stone to more prolonged trips for the collection of rocks outside the immediate school surroundings.

CHAPTER XI

THE EARTH SPRANG OUT IN BLOSSOMS TODAY

Something Never Experienced Before

Spring has so many faces. It is spring when the sun beats down on the old snow, melting it away, through many little trickling streams. It is spring when the trees begin to have that fuzzy look because of all the swelling buds and it is really spring when the first yellowish-green leaves appear on the elm trees. The very last spring appears on the threshold to summer, one of those days when the whole, whole world seems to be ablossoming and agrowing: new leaves on the trees, still engaged in rapid growth, grass green and luscious and little flowers bedecking the ground. And you stand there and look and ask, "When did all this happen? The earth must have sprung out in blossoms today!"

On one of the last days of spring we went out to explore the newborn world around us through our senses, to find something we never had experienced before. We would try to see something we never really saw before, to hear a new sound, to taste, smell and feel something we never had bothered to come close to before. The children were excited, because this would mean "exploring," a magic word to them. Exploring they went, scurrying around on the school ground like flocks of birds, from one place to another to find something. Notebook paper and paper bags would help to record and preserve their findings. They also were urged to try to record in new words and expressions that they had not used very much or at all before.

Long before time was up they came running back, telling: "I really never saw before that some shoots on the pines looked like pineapples and others like little bundles of bananas" or "I almost like the bitter taste of the dandelion's leaves. Some dandelion flowers already have developed small parachutes."

One child had found out how different spring was from the silent winter. Birds were singing, voices of children were heard and even the noises from the heavy traffic a block away was pleasant with a subdued horn honking now and then. Some other children had concentrated on feeling different surfaces rough or smooth, bark on trees and branches for instance.

Had anybody smelled something? Yes, the soil smelled good but not the dandelions. If you crushed the leaves of different trees and bushes, the fragrance would vary a lot. This was a lesson where nobody needed to be left out. There were tasks unlimited right at their fingertips. One boy had spent all his time studying some ants, running in and out of their holes in the sandy ground, performing their daily tasks.

Getting back to the classroom the writer thought it would be a good idea to taper off the day's experience with a little writing. In a paragraph or a poem they would express what they had experienced using their notes of new and effective expressions. However, when the children read their writings to the class, both the prose and the poetry were too crowded with word pictures and descriptions to give an artistic impression. But those descriptions and word pictures carried in themselves such a strong impression of discovery that they became the most important visible gain of the direct experience the children had had, a document in themselves on what had taken place.

Instead a class notebook was organized according to the different senses used in order to preserve all worthwhile accounts of the direct experience lesson. Looking through it the writer saw some expressions worthwhile citing:

Seeing

A scrumptious sapphire blue
The sky looks like a great sea
The gay gliding of birds
A flicker--his white patch flickering, flickering with each movement of his tail
I see the colorful robin making a nest
Towering trees over rich green grass
The glistening sap of old pine trees
The shape of a tree limb, wretched as an old man's hand
The nimble ways spiders crawl
A dragonfly floating bobbing along
A dandelion seed looks like a snowflake floating on air
An anthill looks like a small pitcher's mound
The soft color of the warm, generous sun.

Hearing

I hear the birds chirping like kids talk in school
The birds chirping a mellow song
I hear the city noises and the birds talking to one another
The garble of humans mixed with the twirping birds
The joyous shouts of boys and girls
The rustling of cool green leaves
The cars sound like the roar of a volcano
To me the birds sound as a tinkling, twinkling bell
An airplane as loud as a "boom"

Feeling

The grass is quite sharp
The smooth dirt where the grass has lived and died
I liked the touch of grass
The grass feels like the whiskers of a cat

The dainty feeling of dandelions
Dandelions are soft as a cotton ball
Each petal feels as soft as a newborn baby
I feel the softness of the leaves from the bushes
The softness of the grass and the roughness of rough bark
Bark rough as sand
Bark feels like the rugged side of the mountain
Needles of pine feel like pins and needles
The pine needles feel like the needles of a porcupine
The sap feels like sticky jam

Smelling

The flowers smell as sweet as honey
The lilacs smell as good as French perfume
The sweet-smelling blossoms
Green leaves smell like fruits
A plant leaf that smelled like spearmint
Sap of a tree has a sweet startling smell
Just a dear grassy smell

Tasting

I tasted an awful sour flower
I tasted the sweet nectar from the flowers
Dandelions taste worse than sour milk
The wild rhubarb tastes like sour lime
The old worn-out taste of a tree's old skin
I taste nothing but my red double bubble gum!
The mint-filled taste of a young pine.

The earth sprang out in blossoms today!

CHAPTER XII

SUMMARY

Direct experience teaching in the out-of-doors will result in broader and richer educational opportunities. It will provide a better climate for learning. Children will find exciting adventures in the education outdoors and thus more favorable attitudes to learning will develop. Direct experience teaching provides better learning not only as a supplement to the textbook, but by going beyond the textbook as for instance in the lesson series "Sputnik Spells Trouble." Seeing, hearing, feeling, smelling and tasting as carried out in "The Earth Sprang Out in Blossoms Today" will give the children a new knowledge of the world around them and will keep alive the idea of exploring and discovery and prevent verbalism in learning. It also provides novelty and thus arouses greater interest in learning. [14]

The children for sure found exciting adventures during "A Tour to a City Park." The wealth of material they were exposed to made them able to write fine and original compositions about many different topics. Finding subjects to write about and geared to each individual's special interest by taking a field trip seems to be a much better way than asking them all to write about one or two subjects where many a child has a hard time finding anything worthwhile to tell about. Also learning vocabulary words, such as "nocturnal," after the children in vain had been looking for mice in the daytime or "fungi" after they had been viewing those huge mushrooms, must not only constitute a more interesting way than looking it up in a dictionary but also gives a deeper understanding of the words and a better retainment. The enthusiasm with which the pupils must have told about the trip at home in order to arouse the parents' interest shows that a very favorable climate for learning had been established.

How about initiative and imagination said to be so strongly needed in the world of tomorrow? In "Sputnik Spells Trouble" the pupils took the initiative to get a very important problem solved, namely how to protect themselves and their families in case of an atomic air-raid. This experience about "finding out" and "doing something about it" will for sure be very valuable later in life, too, in new problem situations. A lecture inside the four walls of the classroom on civil defense would not have required any initiative at all and would soon have been forgotten, leaving no carry over on how to master other problem situations in life.

Initiative and imagination were also required in "An Afternoon in the Weedpatch" in order to create something worthwhile out of completely novel materials. If the children each had been outfitted with a box of crayons inside the classroom and told to draw some pictures from nature, neither much of

---

[14] Julian W. Smith, pp. 143-144.

discovery or initiative would have been involved. All it would have amounted to, to many children, would have been "just another art lesson." Even in the case of "Golden Autumn" where the traditional media of water colors was used, the direct experience in the out-of-doors added life and reality to the drawings, sparkle to the colors and a pleasure to the task even felt by those least artistically inclined. Quite a lot of this would have been lacking in an indoor lesson spent copying a drawing of a tree in fall colors or trying to draw one by memory.

The intricate combination of the outdoor experience with audio-visual aids in "One Beautiful Morning" gave a result very superior to similar art lessons taught before indoors with the limited aid of a phonograph only and no previous training of the ability to listen. Furthermore, how could within the four walls of the classroom be arranged a project of the dimension of that in "Snow Sculptures," allowing all the children to move freely around and work in groups on "life size" sculptures? And this experience showed to be of long-lasting value.

An opportunity for scientific discovery and accuracy as offered in "Perimeter, Area and Pi" and "Rockhound on the School Ground" could not have been given only through books and pictures or the limited materials and space of a classroom.

This kind of teaching appeals to a child's imagination and engages him both physically and mentally. There are things to be organized, tasks to be carried out, and theories to be tried and proved. Personal feelings may be interpreted in art, poetry and prose.[15]

Thus the broader and richer educational opportunities of the direct experience teaching in the out-of-doors have been pretty well proved by the experimental lessons described above.

The direct experience teaching will also give the future citizen "a stake in the land" and help him to vote more intelligently for laws preserving "our great American heritage" because he has learned to know and cherish it. This carry-over to the adult years that is likely to take place will also provide a worthwhile way of using the sharply increased leisure time of the future citizen. It will offer him an opportunity of play and meaningful activities, provide a source of strength and relaxation in the cradle of mankind--the great out-of-doors.

---

[15]Ibid., p. 144.

BIBLIOGRAPHY

American Association of School Administrators. Conservation--in the People's Hands. 330 pp. Washington, D. C.: Library of Congress Catalog Card Number 64-19116, 1964.

Bruner, Jerome S. The Process of Education. 97 pp. New York: Vintage Books. A division of Random House, 1963.

Chakrabarti, Sujit K. Audio-Visual Education in India. 235 pp. Calcutta: The Oxford Book and Stationery Company, 1962.

Cooper, Shirley, Deputy Executive Secretary, American Association of School Administrators, Washington, D. C., in a speech at the annual M. E. A. Convention, Minneapolis, Minnesota, 1964.

Lambart, Evelyn and Norman McLaren. "Begone Dull Care," Educational Film Guide, 1953. Produced by the National Film Board of Canada. Released in the United States by International Film Bureau.

Miel, Alice. Creativity in Teaching. 300 pp. Belmont, California: Wadsworth Publishing Company, Inc., 1961.

National Education Association of the United States. The Step Beyond: Creativity. 30 pp. Washington, D. C.: Library of Congress Catalog Number 64-18505, 1964.

Smith, Julian W. Outdoor Education for American Youth. 150 pp. Washington, D. C.: American Association for Health, Physical Education, and Recreation, 1957.